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Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
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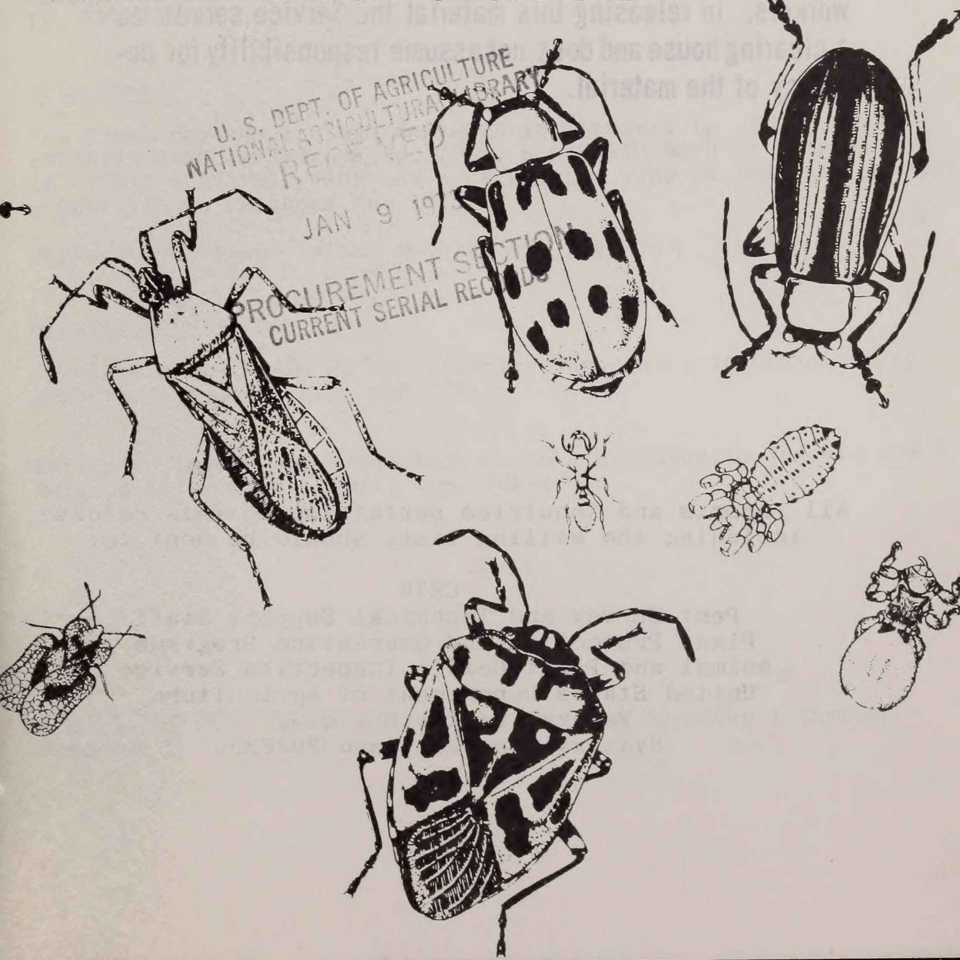

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SOUTHERN CORN ROOTWORM caused economic damage to 50,000 acres of peanuts in northeast North Carolina. (p. 778).

A GEOMETRID MOTH damaged holly for first time in Maryland. (p. 779).

SOUTHERN PINE BEETLE outbreak still widespread in several Southern States. (p. 779).

WALKINGSTICK caused widespread defoliation of hardwoods on Ozark and Ouachita National Forests in Arkansas. (p. 780).

Prediction

CHINCH BUG not expected to be problem in Illinois during 1973. (p. 777-778).

Detection

New State records include an APHID in Missouri (p. 779), an ENCYRTID WASP in Arizona (p. 781), a LIPARID MOTH in Arizona (p. 779), a MYMYRID WASP and a PTEROMALID WASP in Indiana (p. 781), a REDUVIID in Oklahoma (p. 781).

For new county and island records see page 782.

Special Reports

A Method of Determining the Relative Importance of Economically Important Insects. (pp. 785-787).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1971. (pp. 788-805).

Reports in this issue are for weeks ending December 1 through December 22 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....................777

Insects Affecting

Corn, Sorghum, Sugarcane...777
Small Grains...............777
Turf, Pastures, Rangeland..777
Forage Legumes............778
Peanuts....................778
General Vegetables.........778
Citrus.....................778
Small Fruits...............779
Ornamentals................779
Forest and Shade Trees.....779
Man and Animals............780
Households and Structures..781
Stored Products............781

Beneficial Insects.....................................781
Federal and State Plant Protection Programs....................782
Detection..782
Hawaii Insect Report...................................783
Corrections..784
A Method of Determining the Relative Importance of Economically Important Insects......................................785
Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1971............................788
Weather of the Week....................................806

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-DECEMBER 1972 to MID-JANUARY 1973

The National Weather Service's 30-day outlook for mid-December to mid-January is for temperatures to average above seasonal normals over the western three quarters of the Nation except for near normal in the upper Mississippi Valley, the upper Great Lakes, and the central and southern Intermountain Region. Near normal temperatures are indicated for the eastern quarter of the Country except for below normal in New England. Precipitation is expected to exceed normal in New England, the Pacific Northwest, and northern portions of the northern Plains. Subnormal totals are indicated for the Far Southwest and also from the central Plains eastward through the middle Mississippi Valley to the Ohio Valley. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - ARIZONA - No buildup seen in 6 barley fields on west side of Salt River Valley, Maricopa County, week ending December 1. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 5-10 per linear foot in wheat fields in Clovis, Curry County, and Portales, Roosevelt County, week ending December 8. (Mathews). TEXAS - Survey of small grain in 10 Panhandle counties week ending November 24 showed infestations in 8 counties. Heaviest population, 100 per row foot of wheat, in Hale County. (Daniels). OKLAHOMA - Very light, averaged 1 per 10 linear feet, in wheat checked in Stillwater area, Payne County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Adult taken November 28 at light in Independent City of Virginia Beach. (Allen).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - NEW MEXICO - Fields checked around Roswell, Chaves County, ranged 10-100 percent of stalks infested week ending December 8. Infested 10 percent of stalks in cornfields near Hobbs and Lovington, Lea County. (Mathews).

CORN ROOTWORMS (Diabrotica spp.) - ILLINOIS - Soil samples collected in 3 counties during November yielded the following average counts of D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) eggs per pint of soil: Henderson 32; Woodford 36; Warren 43. From 89 to 96 percent of the eggs were D. longicornis. (Ill. Ins. Rpt.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Light (10-15 per row foot) in drilled wheat in northwest area and 5-10 per row foot in Washington County week ending December 1. (Boyer).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Light to moderate infestations found in western area wheat in surveys made during week ending December 1. Highest counts per drill row foot found in Lane (trace to 200) and Decatur (20-100) Counties. (Bell).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Some stands of small grain fields in Geneva County damaged by developing larvae week ending December 1. (Reynolds).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - ILLINOIS - Overwintering populations in native roadside grasses very light this year as in past several years. Of 14 counties surveyed, 8 produced no chinch bugs at all and only 3 had noticeable populations; Iroquois, 10.1 bugs per square foot of hibernating material, Champaign, 15.1 per square foot, and Marion, 21.7 per square foot. Minimum population for potential economic damage is considered 250 bugs per square foot. No problem for 1973 expected. (Ill. Ins. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg counts continued to average 106 and 100 per square foot in Stephens County alfalfa December 8 and December 16. Averaged 1 per square foot in Grady County December 16 and 7 per square foot in Payne County December 6 and December 19. Adults ranged 81-97 per 30 sweeps in alfalfa in Stephens County on December 1. (Okla. Coop. Sur.). TEXAS - Adult activity decreased during week ending December 15 in central areas. Counts in Brazos and Burleson Counties were very low but up to 20 eggs per square foot were still present. (Latham).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adults per 100 sweeps in alfalfa: Yuma Valley 10; Gila Valley zero; Yuma Mesa 140. (Ariz. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Ranged 8-12 per square foot in alfalfa at Roswell and Dexter, Châves County, during week ending November 24 and 0-2 per square foot at Roswell week ending December 15. (Mathews).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Moderate in alfalfa in Washita, Beckham, and Custer Counties week ending December 1. (Okla. Coop. Sur.).

PEANUTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Larvae caused economic damage on 50,000 acres in Northampton, Halifax, Edgecombe, Martin, Bertie, and Hertford Counties. Losses 3-5 times more severe than 1971. About 25,000 acres treated in Edgecombe, Northampton, Martin, and Hertford Counties. (Hunt).

GENERAL VEGETABLES

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae damaging Swiss chard plantings in Fremont, Alameda County, and artichokes in Castrobille, Monterey County. (Cal. Coop. Sur.).

CITRUS

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Taken on grapefruit November 16 at Immokalee, Collier County by W.E. Wynn and H.L. Gillis. This is a new county record. (Fla. Coop. Sur.).

GLOVER SCALE (Lepidosaphes gloverii) - FLORIDA - Taken on grapefruit at Immokalee, Collier County, November 16 by W.E. Wynn and H.L. Gillis. This ia new county record. (Fla. Coop. Sur.).

A DIASPIDID SCALE (Howardia biclavis) - FLORIDA - Adults taken on lemon on motel property at Naples, Collier County, November 15 by V.G. Brown. This is a new host and county record. (Fla. Coop. Sur.).

SMALL FRUITS

GRAPE PHYLLOXERA (*Phylloxera vitifoliae*) - FLORIDA - Nymphs and adults collected August 14, on wild grape, *Vitis* sp., along U.S. 441 in Palm Beach County, one mile north of Broward County line. Determined by G.W. Dekle. Confirmed by L. Russell. This is a new county record. (Fla. Coop. Sur.).

ORNAMENTALS

A GEOMETRID MOTH (*Thysanopyga intractata*) - MARYLAND - Larvae caused moderate to heavy defoliation to holly for first time in State. Collected in Calvert County by W. Gaiser and St. Marys County by E. Swecker October 9; Ann Arundel County by O. Broome and Worcester County by J.L. Hellman October 10; Montgomery County by K. Anderson and R. Biggs and Charles County by J.L. Hellman October 27; Talbot County by R. Rouse December 21. All determined by J.L. Hellman. These are new county records. (U. Md., Ent. Dept.).

FERN SCALE (*Pinnaspis aspidistrae*) - FLORIDA - Collected on *Citrus sinensis* at Ft. Drum, Okeechobee County, November 21, 1972, by H.C. Levan. This is a new county record. (Fla. Coop. Sur.).

AN APHID (*Sanbornia juniperi*) - MISSOURI - Collected from juniper August 3, 1972, at Carthage, Jasper County, by Joseph E. Francka. Determined by L.M. Russell. This is a new State record. (Munson).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - NORTH CAROLINA - Late season increase in population observed on Beech Creek Seed Orchard in Cherokee County. Infestations reached 88 percent on portion of one shortleaf pine geographic source not sprayed; infestation reached 40 percent on treated portion. (USFS).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - Outbreaks continued in November with widespread timber losses and heavy beetle populations occurring in ALABAMA, GEORGIA, LOUISIANA, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TEXAS, TENNESSEE, and VIRGINIA. (So. For. Pest Rptr.).

BARK BEETLES (*Ips* spp.) - FLORIDA - Results of a 1972 statewide survey indicated 38 percent increase in insect-caused tree mortality, primarily by this species. An estimated two million trees representing 250,000 cords killed during 1972. (So. For. Pest Rptr.).

A SCOLYTID BEETLE (*Coccotrypes dactyliperda*) - CALIFORNIA - Adults heavy on fruit of *Phoenix canariensis* (an ornamental date palm) on Fort MacArthur grounds in San Pedro, Los Angeles County. Infestation reported generally heavy by C.L. Smola. (Cal. Coop. Rpt.). This scolytid has been present in State for several years. (PP).

A LIPARID MOTH (*Orgyia rindgei*) - ARIZONA - Pupal cases and ovipositing females taken at Oak Creek Canyon, Coconino County, September 7, 1972, by D. Carver and J. May. Determined by D.C. Ferguson. Egg masses collected from ash, sycamore, willow, choke cherry, California buckthorne, beech, walnut, box elder, poison ivy, and under boulders and wood litter during delimiting survey October 12. This is a new State record. (Ariz. Coop. Sur.).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Widespread defoliation over 16,000 acres was reported on the Ozark National Forest during November. An estimated 25,000 acres of upland hardwood were defoliated in the Ouachita National Forest. Defoliation was light compared with the last 3 years. (So. For. Pest Rptr.).

AN ARMORED SCALE (Protodiaspis didymus) - ARIZONA - Collected in Coconino County October 12, 1972, at Oak Creek and at Cherry, Yavapai County, October 21, 1972, on Quercus gambelli (Gambel oak) by T. Halstead. Determined by D.R. Miller. These are new county records. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Phenacaspis heterophyllae) - FLORIDA - Adults taken on slash pines at Windermere, Orange County, December 4, 1972, by F.L. Ware. This is a new county record. (Fla. Coop. Sur.).

AN ARMORED SCALE (Quadraspidiotus taxodii) - FLORIDA - Taken on bald cypress at Daytona Beach, Volusia County, June 3 by H.N. Pott and west of Lake Worth, Palm Beach County, by W.H. Pierce. Both determined by S. Nakahara. These are new county records. (Fla. Coop. Sur.).

A DIASPIDID SCALE (Comstockiella sabalis) - FLORIDA - Nymphs and adults taken on palmetto, Serenoa repens, few miles south of Lake Placid, Highlands County, October 16 by W.H. Pierce. Determined by G.W. Dekle. This is a new county record. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 976 confirmed cases reported in continental U.S. during period November 19 to December 16 as follows: Texas 951; Arizona 17; California 8. New Mexico was free of screwworms for the first time in more than 6 months. Number of sterile flies released in U.S. this period totaled 444,702,000 as follows: Texas 416,748,600; Arizona 17,520,000; Florida 8,352,000; California 1,815,000; Louisiana 266,400. Total of 1,537 cases reported in Mexico this period. Total of 357,232,100 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Heavy on cattle in Comanche County and light in Pawnee County week ending December 1. Unusually heavy in some cattle at packing houses. Ranged 20-30 per head in Major County cattle herd. Heavy in cattle in Pawnee County, moderate in Comanche and Hughes Counties. Averaged 3 per head on cattle in Payne County week ending December 8. Moderate to heavy on cattle in Okfuskee County and moderate in Comanche County week ending December 15. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - OKLAHOMA - Continued heavy in ears of cattle checked in Comanche County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), moderate on cattle in Garfield, Okfuskee, Comanche, Oklahoma, Pawnee, and Hughes Counties. Light in Payne County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Specimen taken from home in Franklin County week ending November 1. (McQueen).

HOUSEHOLDS AND STRUCTURES

A POWDERPOST BEETLE (Lyctus brunneus) - ALABAMA - Larvae and adults severely damaged wood paneling of cottage in Gulf State Park in southern Baldwin County. Collected November 15, 1972, by G.M. McLeod. Determined by J.T. Spilman. (McQueen). Previously reported as moderate in subflooring in house November 17, 1933, by J.M. Robinson. No specific location in State given. (PP).

STORED PRODUCTS

LESSER MEALWORM (Alphitobius diaperinus) - OREGON - Heavily infesting chicken litter in poultry house in Canby area, Clackamas County. This is a new county record. (Westcott).

BENEFICIAL INSECTS

A REDUVIID (Empicoris orthoneuron) - OKLAHOMA - One specimen of this predator taken on corn near Hough, Texas County, July 25, 1972, by D.C. Arnold. Determined by J.L. Herring. This is a new State record. (Okla. Coop. Sur.).

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Clusters of 200-300 overwintering adults found in trash around Oktibbeha County alfalfa fields week ending December 1. (Nichols).

A PTEROMALID WASP (Sceptrothelys grandiclava) - INDIANA - Adults of this hyperparasite emerged from a cocoon of Bathyplectes curculionis taken March 14 by M.C. Wilson from an alfalfa field in Knox County. Determined by B.D. Burks. This is a new State record. (Wilson).

A MYMARID WASP (Patasson luna) - INDIANA - Adults emerged from Hypera postica (alfalfa weevil) eggs collected by M.C. Wilson April 5 in Harrison County. Determined by B.D. Burks. This is a new State record. (Wilson).

AN ENCYRTID WASP (Aphycus fumipennis) - ARIZONA - Collected October 10, 1972, by T. Halstead on oak infested with Eriococcus euphorbiae in Yavapai County. Determined by D.R. Miller. This is a new State record. This rare parasite of mealybugs reported only twice since described in 1918, both from California. (Ariz. Coop. Sur.).

A CHALCIDID WASP (Hockeria unipunctatipennis) - OKLAHOMA - Single specimen reared from 30 cocoons of Neodiprion excitans (a conifer sawfly) collected in Haskell County March 7, 1972. H. unipunctatipennis determined by B.D. Burks. (Okla. Coop. Sur.).

PARASITIC WASPS - KANSAS - Following species reared from Contarinia sorghicola (sorghum midge) collected from infested sorghum heads October 17, 1972, in Woodson County by K.O. Bell: Eupelmus popa (a eupelmid wasp), Aprostocetus diplosidis (a eulopid wasp), and Tetrastichus sp. (a eulophid wasp, possibly more than one species). Determined by B.D. Burks. Also laboratory reared from heads of milk-stage sorghum collected October 17 and 18 in following counties: Crawford, 4 Tetrastichus sp., 11 E. popa; Montgomery, 10 Tetrastichus sp.; Labatte, 1 Tetrastichus sp., 3 E. popa; Linn, 28 Tetrastichus sp., 12 E. popa. (Bell).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Various species averaged 8 or more per square yard on rangeland in northwest Chaves County. (N.M. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Large infestation involving about 50 acres located in Fremont Township in Isabella County. Large number of egg masses in area. Determined by R. Moore and M. Hanna. Confirmed by D.M. Weisman. (Sauer, Nov. 17).

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Taken at Palmdale and another site in Glades County November 22, 1972. Determined by D.R. Smith. This is a new county record. (Fla. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adults heavy and depositing eggs on rangeland in northwest Chaves County. (N.M. Coop. Rpt.).

DETECTION

New State Records - MADEIRA COCKROACH (Leucophaea maderae) - CALIFORNIA - Nymphs inhabiting residence in Cheli Air Force Base, Maywood, Los Angeles County, week ending November 17. Considered serious pest of homes and warehouses. Collected by C. Olson, November 9. Determined by A. Hardy. (Cal. Coop. Rpt.).

AN APHID (Sanbornia juniperi) - MISSOURI - Jasper County. (p. 779). (p. 779). AN ENCYRTID WASP (Aphycus fumipennis) - ARIZONA - Yavapai County. (p. 781). A LIPARID MOTH (Orgyia rindgei) - ARIZONA - Coconino County. (p. 779). A MYMARID WASP (Patasson luna) - INDIANA - Harrison County. (p. 781). A PTEROMALID HYPERPARASITE (Sceptrothelys grandiclava) - INDIANA - Knox County. (p. 781). A REDUVIID (Empicoris orthoneuron) - OKLAHOMA - Texas County. (p. 781).

New County and Island Records - EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Several specimens taken at Newberry, Luce County, residence week ending December 8. Infestation moderate. First record from Upper Peninsula. Collected by Mrs. F. Nomand. (Sauer).

AN APHID (Lachnus salignus) - HAWAII - Oahu (p. 784). ARMORED SCALES - Phenacaspis heterophyllae - FLORIDA - Orange (p. 780). Protodiaspis didymus - ARIZONA - Coconino, Yavapai (p. 780). AN ARMORED SCALE (Quadraspidiotus taxodii) FLORIDA - Volusia, Palm Beach (p. 780). DIASPIDID SCALES - Comstockiella sabalis - FLORIDA - Highlands (p. 780). Howardia biclavis - FLORIDA - Collier (p. 778). FERN SCALE (Pinnaspis aspidistrae) FLORIDA - Okeechobee (p. 779). A GEOMETRID MOTH (Thysanopyga intractata) MARYLAND - Calvert, St. Marys, Ann Arundel, Worcester, Montgomery, Charles, Talbot (p. 779). GLOVER SCALE (Lepidosaphes gloverii) FLORIDA - Collier (p. 778). GRAPE PHYLLOXERA (Phylloxera vitifoliae) FLORIDA - Broward (p. 779). LESSER MEALWORM (Alphitobius diaperinus) OREGON - Clackamas (p. 781). A MEMBRACID TREEHOPPER (Antianthe expansa) HAWAII - Hawaii Island (p. 783). PURPLE SCALE (Lepidosaphes beckii) FLORIDA - Collier (p. 778). RED IMPORTED FIRE ANT (Solenopsis invicta) FLORIDA - Glades (p. 782).

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) and CORN PLANTHOPPER (Peregrinus maidis) severe in 3 acres of field corn at Kaaawa, Oahu; nearly 100 percent of mature ears with various instar larvae. (Kawamura). Earworm larvae heavy in 3 acres of sweet corn at Waimanalo, Oahu; about 80 percent of ears infested. (Otsuka, et. al.).

General Vegetables - CHINESE ROSE BEETLE (Adoretus sinicus) caused heavy foliar damage in small planting of eggplant at Kahaluu, Oahu. Light damage in 0.2 acre of ginger at Waimanalo; 50 percent of leaves lightly affected. Light infestation by PEPPER WEEVIL (Anthonomus eugenii) in 0.1 acre of sweet peppers at Waimanalo, Oahu; about 10-15 percent of fruits infested with larvae and/or adults. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate on younger leaves in 0.2 acre of snap beans at Waimanalo, Oahu, and heavy in 2 small plantings of eggplant at Waianae and Waimanalo, Oahu. LEAFMINER FLIES (Liriomyza spp.) heavy in small plantings of cucumber at Waianae and Waimanalo; also heavy in small plantings of okra and club gourd at Waimanalo. Moderate to heavy in small plantings of tomato, snap beans, and soybeans at Kahaluu. (Kumashiro, Wong, Otsuka).

Fruits and Nuts - Colonies of FLORIDA RED SCALE (Chrysomphalus aonidum) light on coconut trees at Lahaina (50 trees) and Kihei (180 trees), Maui. (Ah Sam, Miyahira). Heavy larval infestations of MANGO SHOOT CATERPILLAR (Bombotelia jocosatrix) noted on leaves of mango tree at Waihee, Maui; 75 percent of young leaves affected. Treatments applied. On Hawaii, Polistes spp. (vespid wasps) observed preying on larvae of B. jocosatrix and contributed to effective control of this pest. (Miyahira). Moderate adult infestation of a MEMBRACID TREEHOPPER (Antianthe expansa) noted in small yard plantings of poha (Physalis peruviana) at Keeau, Hawaii. A. expansa first reported on Oahu in June 1971; this is first report of spread to neighbor island. (Matayoshi). Eggs, larvae, and pupae of CITRUS SWALLOWTAIL (Papilio xuthus) light on lemon tree at Nuuanu, Oahu. Unusual for this time of year. On Kauai, adult sightings past few weeks negative. P. xuthus apparently enters period of diapause during this period. (Sugawa, Kawamura).

Turf and Pastures - GRASS WEBWORM (Herpetogramma licarsisalis) light (3+ larvae per square foot) in Kikuyu grass at Haiku, Maui. Heavy, spotty damage noted at Kaupakulua, with as many as 10 larvae per square foot. (Haw. Ins. Rpt.). Average of 14 larvae per square foot in 5 acres of pasture at Pahoa, Hawaii, during September. Parasitism by larval parasites Eucelatoria armigera (a tachina fly), Meteorus laphygma (a braconid wasp), and Trathala flavo-orbitalis (an ichneumon wasp), heavy. (Yoshioka).

Man and Animals - Mosquito collections from 58 light traps on Oahu during November as follows: Aedes vexans nocturnus ranged 0-378 with total of 866; Culex pipiens quinquefasciatus ranged 0-710 with total of 1,815. (Mosq. Control Br.,State Dept. of Health).

Miscellaneous Pests - At Poipu, Kauai, following substantial rains and heavy hand baiting during November, about 800 GIANT AFRICAN SNAIL (Achatina fulica) specimens observed dead or dying. No snails observed at Wahiawa during same period; baiting continues.

(Sugawa). Nymphs and adults of an APHID (*Lachnus salignus*) heavy on 2 weeping willow trees (*Salix babylonica*) at Pauoa, Oahu. This is a new island record. *L. salignus* was first reported on the island of Hawaii in 1911, and on the island of Maui in 1965. (Otsuka).

Beneficial Insects - During November, *Melanagromyza phaseoli* (bean fly) infesting cowpea and snap bean petioles on Kauai 98 percent parasitized by BRACONID WASPS (*Opius phaseoli* and *O. importatus*). At Waikapu and Lahaina parasitism by *O. importatus* was 86 and 100 percent. (Sugawa, Miyahira). During week ending December 8, an average of 29 percent of adult stink bugs observed throughout Oahu parasitized by a TACHINA FLY (*Trichopoda pennipes pilipes*). Similar samplings on Maui revealed 84 percent parasitism by *Trichopoda* spp. (Kumashiro, Wong, Otsuka, Miyahira). LANTANA DEFOLIATOR CATERPILLAR (*Hypena strigata*) caused moderate damage to foliage at Hookena, Kona, Hawaii. Larvae of LANTANA LEAF BEETLE (*Octotoma scaloripennis*) heavy on some leaves, adults generally light. On Kauai, field examinations of *Melastoma malabathricum* fruits revealed 64 and 11 percent infestations of a ARCTIID MOTH (*Selca brunella*) at Hanahanapuni and Knudsen Gap, respectively. Similar examination at Hilo, Hawaii, averaged 46 and 29 percent infestation of fruits and terminals, respectively. (Sugawa, Matayoshi).

CORRECTIONS

CEIR 22(44):739 - A CERAMBYCID BEETLE (Leiopus variegatus) should read *Astyleiopus* variegatus. This is *not* a new record for New Jersey. There is a specimen in the University of Minnesota labeled "New Jersey" with no further data. See Dillon, L.S. 1956. The nearctic components of the tribe Acanthocinini (Coleoptera: Cerambycidae) Part 1. Ann. Ent. Soc. Amer. 49(2):134-167. (PP).

CEIR 22(46-48):764 - MAN AND ANIMALS - SCREWWORM - "... Special surveillance operations around Dermopolis, ..." should read "... Demopolis ..."

A Method of Determining the Relative Importance of Economically Important Insects

W. A. Allen

In many States, it is the responsibility of the Survey Entomologist to determine the relative importance of insects in that State. To accomplish this he must use accurate survey techniques coupled with available research and statistical data. In Virginia, preliminary slection and ranking of 10 currently important insects was begun by using quantitative measurements. The relative importance of insects can be measured on at least three scales: 1) management costs (i.e. the costs to control insects); 2) changes in the value of goods or property due to the presence or activity of insects (i.e. crop losses); and 3) the impact that insects have upon man and his environment. The summation of these three values, if accurately obtained, reflect the net economic evaluation of a particular species. Net evaluation is mentioned because it must be recognized that even destructive insects may also be, in part, beneficial (e.g. mosquito larvae provide food for small fish). For many crops, we are able to measure the cost of controlling crop pests and the losses they cause with current methodology. The technology to measure environmental impact of a crop pest remains, in large part, to be developed.

The accompanying table shows the estimated crop losses and control costs for 10 of the more important crop pests in Virginia. The list does not include all of the important pests in the State. It is merely a best estimate based upon available data. This method of presenting information may prove valuable to survey entomologists as a guideline for ranking economically important pests by itemizing crop loss and control costs. In subsequent listings of important crop pests in Virginia, additional species may be added and attempts will be made to supply missing information. Consequently, net evaluation estimates will be changed as new information becomes available. The total environmental impact was not included because of the scarcity of information in this area.

Sources of Information

Mosquitoes - R.E. Dorer.
Spider Mites - Peaches, M.L. Bobb; apples, C.H. Hill; soybeans, R.N. Hofmaster; ornamentals, J.A. Weidhaas.
Corn Earworm - Tomatoes, snap beans, sweet corn, R.N. Hofmaster; soybeans, field corn, W.A. Allen.
Armyworm - W.A. Allen.
Southern Corn Rootworm - J.C. Smith and A.H. Allison.
Alfalfa Weevil - W.A. Allen.
Mexican Bean Beetle - W.A. Allen.
Japanese Beetle - Apples, C.H. Hill; peaches, W.L. Bobb; ornamentals, J.A. Weidhaas; turf, W.H. Robinson.
Cabbage Looper - R.N. Hofmaster.
Termites - W.H. Robinson.

Current Partial Estimates of Crop Losses and Costs of Control for 10 of the More Important Insects in Virginia

W. A. Allen

		A	B	C	D	E	F
Insect	Crop	# Acres treated	# Applications/acre	Total Est. Cost to Control Insects/Acre	Est. Cost to Protect All Crops (A)(B)(C)	Est. Yield Loss if Insects not Controlled	Total Est. Cost in Virginia
Mosquitoes (All species)	-	-	-	-	$1,600,000[a]	-	$1,600,000[b]
Spider mites (All species)	Peaches						
	Dormant	5,922	1	$ 4.50	26,649	-	
	Seasonal	5,922	1	4.00	23,688	-	
	Apples						
	Dormant	39,500	1	4.50	177,750	-	
	Seasonal	39,500	3	24.00	948,000	-	
	Soybeans	36,000[c]	1	5.00	180,000[c]	225,200[c,d]	
	Ornamentals[f]						
							1,581,287[b]
Corn earworm (*Heliothis zea*)	Tomatoes (Fall)	2,000	3	15.00	30,000	-	
	Snap Beans	7,500	3	15.00	112,500	-	
	Soybeans		1	4.00[c]	157,160[c]	647,505	
	Field corn					356,000[e]	
	Sweet corn						
	fresh	1,250	10	40.00	50,000	-	
	canning	1,250	3	12.00	15,000	-	
							1,367,665[b]
Armyworm (*Pseudaletia unipuncta*)	Field corn	-	1	4.00	162,600[c]	627,914[c]	
	Small grain	1,000	1	4.00	4,000	-	
							794,514[b]
Souther corn rootworm (*Diabrotica duodecimpunctata howardi*)	Peanuts	82,400	1	9.50	782,000	-	
							782,000[b]
Alfalfa weevil (*Hypera postica*)	Alfalfa	-	2	7.00	291,452[c]	353,780[c]	
							645,232[b]

Insect	Crop	A # Acres treated	B # Applications/acre	C Total Est. Cost to Control Insects/Acre	D Est. Cost to Protect All Crops (A)(B)(C)	E Est. Yield Loss if Insects not Controlled	F Total Est. Cost in Virginia
Mexican bean beetle (Epilachna varivestis)	Soybeans			$ 4.00	$187,450[c]	$215,255[c]	
							$402,705
Japanese beetle (Popillia japonica)	Apples						
	Peaches						
	Ornamentals[f]	10,000	3	24.00	240,000	-	
	Turf[e]	5,922	2	24.00	142,128	-	
							382,128
Cabbage Looper (Trichoplusia ni)	Cabbage	2,500	2	13.00	32,500	-	
	Broccoli	1,500	10	65.00	97,500	-	
	(Kale, Turnips, Mustard Collards)	1,500	6	39.00	58,500	-	
	Irish potatoes	2,000	1	6.50	13,000	-	
	Tomatoes	2,000	1	6.50	13,000	-	
	Southern peas	700	2	13.50	9,100	-	
							321,100
Termites[f]		-	-	-	-	-	-

a)Cost of abatement.
b)For sources of information see page .
c)Based on a 5-year average (1967-1971).
d)Average number of acres needing but not receiving control (40 percent of 60,000 (i.e. 24,000) minus 15,000 (no. acres treated)) and estimated yield loss (8 bu.) and 1971 prices ($2.90 bu.).
e)Based on a 2-year average (1971-1972).
f)Although we believe this insect to be highly important, we were unable to assign it a value.

COOPERATIVE ECONOMIC INSECT REPORT

ESTIMATED LOSSES AND PRODUCTION COST ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS - 1971

Introduction

Prior to 1966, insect loss estimates were published in the Cooperative Economic Insect Report as individual reports. An attempt has been made for the seventh year to condense loss estimates from various States into a single report. This gives a more meaningful and better overall picture of the crop losses. The data have been compiled from the crop loss estimates submitted from 13 States. The entomologists submitting the 1971 estimates are listed below.

H.F. McQueen	Alabama
J.E. May	Arizona
W.P. Boyer	Arkansas
K.F. Kawamura	Hawaii
K.O. Bell, Jr.	Kansas
D.E. Barnett	Kentucky
J.L. Hellman	Maryland
R.G. Flaskerd	Minnesota
W.J. Brandvik	North Dakota
D.C. Arnold	Oklahoma
C.D. Gordon	Tennessee
L.R. Green	Texas
W.A. Allen	Virginia

Legend for pest abbreviations appears at end of loss tables.

Separates of this report are available from the Economic Insect Survey and Detection Staff.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
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Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
ALFALFA (Hay)										
			Tons							
Arizona	AC, BA, CwS, EWA, Gh, L, LB, M, SAA, TCAH, Wbw	201,000	.500	16.00	20,000	320,000	4.50	20,000	90,000	610,000a
Arkansas	AlW	50,000	.875	26.25	10,000	262,000	2.00	30,000	60,000	322,500
Kansas	AlW	1,125,000	.173	4.67	1,400	6,530	3.00	400	1,200	7,730
	Gh	"	.115	3.11	49,000	152,400	2.90	11,000	31,900	184,300
	PA	"	.115	3.11	46,000	143,070	2.00	4,000	8,000	151,070
	SAA	"	.114	3.89	13,000	50,540	3.00	8,000	24,000	74,540
	Wbw	"	.114	3.89	13,000	50,540	2.50	10,000	25,000	75,540
Maryland	PA, AlW, PL, LB, MS, PB, GFh	73,000	.640	25.60	2,000	51,200	7.00	28,000	196,000	247,200
North Dakota	Gh, A, AlW, PB, Wbw	1,398,000	.140	2.52	50,000	126,000	2.50	30,000	75,000	201,000
Oklahoma	AlW, SAA, PA, Gh, FA	598,000	.825	27.40	222,456	6,095,294	5.04	136,344	687,174	6,782,468
Tennessee	AlW	52,000	.490	23.52	10,000	235,200	7.00	40,000	280,000	515,200
Virginia	AlW, Slb, PA	87,000	1.060	42.40	5,000	212,000	7.00	45,000	315,000	602,000a
					Subtotal	7,704,774			1,793,274	9,773,548
ALFALFA (Seed)										
			Cwt.							
Arizona	AC, BA, CEW, CsC, Cws, EAW, L, Lb, StB, SAA, TCHAH	6,800	.090	3.02	2,800	8,456	6.00	4,000	24,000	74,456a
					Subtotal	8,456			24,000	74,456

a Quality loss included in total.

Crop State	Pest Complex	Total Acres Produced	Yield Loss				Control Cost			Total Loss
			Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	
ANTHURIUM			Doz.							
Hawaii	K, M, T	247	321	831	47	205,353	90.28	200	18,056	223,409
					Subtotal	205,353			18,056	223,409
APPLES										
Arkansas	CdM, RAA, LR	1,600	-	-	-	-	56.00	1,600	89,600	129,600a
Maryland	A, CdM, LR, M, SpM	Lbs. 71,000,000	-	-	-	-	Lbs. .01	71,000,000	710,000	710,000
Minnesota	AM, CdM, ApC, M, LR	3,000	-	-	-	-	160.00	3,000	480,000	480,000
Virginia	CdM, A, M, AM	490	-	-	-	-	0.0048	490	2,352,000	2,352,000
					Subtotal				3,631,600	3,671,600
ASPARAGUS										
Maryland	AB	4,000	-	-	-	-	3.00	2,500	7,500	7,500
					Subtotal				7,500	7,500
BARLEY										
Arizona	Aw, Gb, Cws, M, T	119,000	Bu. 7.6	10.18	-	-	4.50	30,000	135,000	135,000
North Dakota	A, T, Gh, AL, Ww	2,218,000	4.0	3.08	10,000	30,800	2.50	30,000	75,000	105,800
					Subtotal	30,800			210,000	240,800

a Losses incurred despite control.

Crop State	Pest Complex	Total Acres Produced	Yield Loss				Control Cost			Total Loss
			Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	
BROCCOLI			Cwt.							
Arizona	A, BA, CL, DB	1,000	45	697.50	-	-	75.00	1,000	75,000	75,000
					Subtotal	-			75,000	75,000
CABBAGE										
Arizona	A, CL, BA	14,000	10	40.20	700	28,140	105.00	700	73,500	101,640
					Subtotal	28,140			73,500	101,640
CANTALOUPE (Spring)										
Arizona	A, CL, M	8,900	8.75	77.26	1,500	115,890	5.00	1,500	7,500	123,390
(Early Summer)										
Arizona	A, Ch, L, M	1,600	10.50	88.41	700	61,887	15.00	900	13,500	75,387
(Early Fall)										
Arizona	A, CL, L	1,200	17.25	94.88	600	56,928	20.00	600	12,000	68,928
					Subtotal	234,705			33,000	267,705
CARROTS										
Arizona	BA, CaB, GPA	2,600	19.00c	156.37c	-	-	5.00	1,600	8,000	8,000
					Subtotal	-			8,000	8,000

b Losses incurred despite control.

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
CATTLE (Beef)		Head	Cwt.							
Arkansas	CaL	1,787,000	-	-	-	-	.20	422,500	84,500	84,500
	HoF, LST	1,787,000	10%	16.00	1,533,500	24,824,000	.75	253,500	190,125	25,014,000
	Mo	1,787,000	10%	16.00	260,000	4,160,000	-	-	-	4,160,000
Oklahoma	HoF, CaG, Li, Ti, HrF, S	2,194,000	1.1	40.92	1,701,945	28,082,700	1.98	3,303,775	6,541,474	34,624,174
					Subtotal	57,066,700			6,816,099	63,882,674
CATTLE (Dairy)										
Arkansas	Hf	97,000 (Lbs. milk)	5.72	39.47	49,000	1,934,030	5.40	48,000	259,200	2,193,230
Oklahoma	HoF, Li, CaG, Sf, HrF, Ti	1,260,000	9.6	59.71	20,880	1,246,745	2.66	109,620	291,589	1,538,334
					Subtotal	3,180,775			550,789	1,538,334
CAULIFLOWER										
Arizona	Aw, CL, DB	810	49	882.00	-	-	120.00	810	97,200	97,200
					Subtotal	-			97,200	97,200
CLOVER (Timothy)			Tons							
Maryland	CoA, FB, Gh, LB, Ms, PB	210,000	.19	5.70	2,000	11,400	3.50	8,000	28,000	39,400
					Subtotal	11,400			28,000	39,400

			Yield Loss				Control Cost			
Crop State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
CORN (Grain)			Bu.							
Arizona	BA, CEW, FB, Gh, LCB, M, SCM, SwCB, StB, WCR	14,000	9.60	12.38	10,000	123,800	5.00	4,000	20,000	643,800
Hawaii	CEW, CSpM, CP	220	Lbs. 241	31.33	-	6,892	76.94	220	16,926	23,818
Kansas	CR (larvae)	1,311,000	Bu. 14.74	15.92	65,000	1,477,550	3.00	820,000	2,460,000	3,937,550
	CR (adults)	"	-	-	-	-	2.50	100,000	250,000	250,000
	CEW	"	1.03	1.11	1,216,000	1,348,868	3.80	76,000	288,800	1,637,668
	ECB	"	5.04	5.43	111,000	603,895	3.50	54,000	189,000	792,895
	WBC	"	-	-	-	-	3.90	95,000	370,500	370,500
	CLA	"	-	-	-	-	2.25	42,000	94,500	94,500
	SpM	"	-	-	-	-	3.40	260,000	884,000	884,000
	Gh	"	4.6	4.97	19,800	98,410	2.00	10,200	20,400	118,810
	FA	"	-	-	-	-	2.00	27,000	54,000	54,000
	CwS	"	4.6	4.97	3,950	19,630	2.00	10,500	21,000	40,630
	CB	"	4.6	4.97	5,300	26,340	2.00	2,100	4,200	30,540
Kentucky	ECB	92,900	1.24	1.53	168	259	6.75	27	182	1,109
Maryland	CLA, Aw, CEW, CR, ECB, FA, DsB	500,000	7.2	8.57	40,000	342,800	5.00	10,000	50,000	392,800
Minnesota	ECB	6,533,000	2.49	2.86	-	20,658,154	2.75	136,000	374,000	21,032,155
	CR, Cws, Ww	"	6.64	7.64	600,000	4,581,000	3.00	1,663,000	4,989,000	9,570,000

Crop State	Pest Complex	Total Acres Produced	Yield Loss				Control Cost			
			Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
CORN (Grain) Cont.			Bu.							
North Dakota	CR, Ww, CLA, Gh	172,000	1.7	1.71	30,000	51,300	2.50	15,000	37,500	88,800
Tennessee	CEW	675,000	.55	.64	125,000	80,437	5.00	75,000	375,000	455,437
Virginia	Aw, Cws, CEW, JB	461,000	51.00	62.22	13,300	827,526	2.50	125,000	312,500	1,140,026
					Subtotal	30,246,861			10,811,508	41,559,038
CORN (Silage)			Tons							
North Dakota	ECB, CR, Ww, CLA, Gh	322,000	.36	2.52	70,000	176,400	2.50	10,000	25,000	201,400
					Subtotal	176,400			25,000	201,400
CORN (Sweet)										
Maryland	Aw, CEW, CR, ECB, DsB, FA	18,300	.29	7.26	2,300	16,698	10.00	16,000	160,000	176,698
Minnesota	ECB, CEW, CR	108,100	-	-	-	-	10.00	87,328	873,280	873,280
					Subtotal	16,698			1,033,280	1,049,978
COTTON			Lbs.							
Arizona	LB, Blw, PBw	285,400	255	78.70	12,000	944,400	34.00	230,000	7,820,000	9,064,400
Arkansas	BW, Blw, PB, M	1,135,000	51	12.34	90,800	1,120,472	10.00	873,950	8,739,500	10,079,972
Oklahoma	BW, Blw, T, F	396,000	111	30.53	79,942	5,493,629	9.98	101,218	1,010,156	6,503,785
Tennessee	BW	425,000	24	6.72	20,000	134,400	16.00	120,000	1,920,000	2,054,600
	Blw	"	90	25.20	40,000	1,008,000	16.00	160,000	2,560,000	3,568,400

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
COTTON (Cont.)			Lbs.							
Texas	Blw, BW, F, TB, BA, CLP, A, T, Gh, SpM	4,700,000	65.75	16.04	121,551	1,949,678	4.88	2,228,449	10,870,654	12,941,883
				Subtotal		1,949,678			32,920,310	44,213,040
FLAX			Bu.							
North Dakota	Gh, Cr, Wbw, AL	861,000	1.0	2.25	10,000	22,500	2.50	20,000	50,000	72,500
				Subtotal		22,500			50,000	72,500
GRAPEFRUIT			Boxes							
Arizona	CPM, CT	7,450	53.85	68.93	2,450	168,879	10.50	5,000	52,500	343,879
				Subtotal		168,879			52,500	343,879
HAY			Tons							
Arizona	A, BA, AC, CL	39,000	.22	5.50	2,700	14,850	4.00	300	1,200	16,050
Minnesota	Gh, PA, L	3,250,000	.08	1.46	248,000	361,832	2.50	4,000	10,000	371,832
				Subtotal		376,682			11,200	387,882
HEN & PULLETS										
Arkansas	Hf	16,000,000	-	-	-	-	.036	12,800,000	46,080	46,080
	NFM	"	-	-	-	-	.112	9,600,000	107,520	107,520
				Subtotal					107,520	107,520

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub total	Total Loss
HOGS										
Arkansas	Li	392,000	6%	1.26	190,000	239,400	.10	10,000	1,000	240,400
					Subtotal	239,400			1,000	240,400
			Cwt.							
HONEYDEWS										
Arizona	A, CL, L, M	1,200	16.50	138.44	-	-	20.00	1,200	24,000	24,000
					Subtotal				24,000	24,000
LEMONS			Boxes							
Arizona	M, L, T	14,500	69.75	113.69	500	56,845	21.00	14,000	294,000	371,345
					Subtotal	56,845			294,000	371,345
LETTUCE (Early Spring)			Cwt.							
Arizona	A, BA, CL	15,200	135.5	723.45	-	-	86.50	15,200	1,358,050	1,358,050
Late Fall		10,300	131.25	1,614.38	-	-	90.00	10,300	927,000	927,000
Winter		18,400	165.75	919.91	-	-	133.50	18,400	2,456,400	2,456,400
					Subtotal				4,741,450	4,741,450
MACADAMIA NUTS			Lbs.							
Hawaii	T, BM	4,900	353	77.66	1,405	137,069	369.00	360	132,840	269,909
					Subtotal	137,069			132,840	269,909

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
OATS			Bu.							
North Dakota	Gh, Ww, Aw, A	2,015,000	5	2.35	10,000	23,500	2.50	10,000	25,000	48,500
					Subtotal	23,500			25,000	48,500
ONIONS (Green)			Lbs.							
Hawaii	BA, LMF, OT	75	2,356	730.36	-	54,777	142.59	75	10,694	65,471
Arizona (Dry)	BA, CL, OT	1,500	114	372.78	500	186,390	20.00	1,000	20,000	206,390
					Subtotal	241,167			30,694	271,861
ORANGES			Boxes							
Arizona	K, L, T, Sc	23,000	60	148.20	500	74,100	12.80	22,500	288,000	372,100
					Subtotal	74,100			288,000	372,100
PASSION FRUIT			Lbs.							
Hawaii	BSc, CSpM, BM, Mb, MF	200	9,234	554.04	164	110,808	83.02	36	2,989	113,797
					Subtotal	110,808			2,989	113,797
PASTURES										
Kansas	Gh	20,339,000	-	-	262,000	-	2.50	28,000	70,000	70,000
					Subtotal				70,000	70,000

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
PEACHES										
Arkansas	OFM, SB, Sc, PTB, PC, TpB	3,500	-	-	-	-	40.00	3,500	140,000	455,000
Maryland	OFM, M, PTB, PC, PB	Lbs. (mill.) 23	-	-	-	-	Per Lb. .005	Mill 23	115,000	115,000
					Subtotal				255,000	570,000
PEANUTS			Lbs.							
Oklahoma	LCB, CEW, RPw, T, FA	118,000	456	61.10	24,214	1,479,475	6.01	20,626	123,962	1,603,437
Texas										
Virginia	SCR, T, M, CEW	93,000	69.6	9.74	1,000	9,740	7.75	92,000	713,000	727,740
					Subtotal					
PEAS			Tons							
Maryland	PA, AC	6,600	.14	16.38	-	-	3.00	6,600	19,800	19,800
Minnesota	PA, Lo	63,900	-	-	-	-	4.00	33,936	135,744	135,744
					Subtotal				155,744	155,744
POTATOES			Cwt.							
Arizona	GPA, PP	10,000	.03	.08	-	-	5.00	10,100	50,500	50,500
Minnesota	L, FB, CPB, A, Ww, Cws	97,500	17.2	24.76	2,500	61,900	10.00	95,000	950,000	1,011,900
North Dakota	L, FB, CPB, Ww	119,000	4.7	6.72	1,000	6,720	6.20	44,000	272,800	279,520
					Subtotal	68,620			1,273,300	1,296,920

Crop State	Pest Complex	Total Acres Produced	Yield Loss Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Control Cost Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
RICE										
Arkansas	RSB, Gh,	442,000	-	-	-	-	2.00	25,000	50,000	50,000
	RWW	"	-	-	-	-	.35	442,000	154,700	154,700
					Subtotal				204,700	204,700
RYE			Bu.							
North Dakota	Gh, AL	300,000	3.6	2.34	5,000	11,700	2.50	5,000	12,500	24,200
					Subtotal	11,700			12,500	24,200
SAFFLOWER										
Arizona	LB	20,000	Ton .14	14.70	15,000	220,500	4.50	5,000	22,500	243,000
					Subtotal	220,500			22,500	243,000
SMALL GRAIN (Wheat, Oats, Barley)										
Minnesota	A, Gh, Aws	5,348,000	-	-	-	-	2.50	4,000	10,000	10,000
					Subtotal				10,000	10,000
SNAP BEANS										
Hawaii	LMF, CSpM, GHWf BF, CRB, BM	90	Lbs. 764	282.68	-	25,441	310.04	.90	27,903	53,344
Maryland	ECB, CEW, PL, T, M, MBB	9,000	Ton .19	14.48	1,000	14,480	10.00	8,000	80,000	94,480
					Subtotal	39,921			117,903	157,824

			Yield Loss				Control Cost			
Crop State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres	Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
SORGHUM (Grain)										
Arizona	BA, CEW, Cws, FA, FB, Gb, LCB, SM, SwCB, SpM, Wf	174,000	Bu. 10.95	14.45	12,000	173,400	7.70	58,000	446,600	620,000
Arkansas	SM, CEW, SWw	239,000	Cwt. 1.26	2.39	11,711	27,962	2.00	41,347	82,694	110,656
Kansas	Gb	4,325,000	Bu. 8.1	8.10	200,000	1,620,000	2.25	1,000,000	2,250,000	3,870,000
	CLA	"	-	-	-	-	2.25	60,000	135,000	135,000
	CB	"	-	-	12,000	-	2.50	14,000	35,000	35,000
	SpM	"	-	-	-	-	3.25	12,500	40,600	40,600
	FA	"	-	-	-	-	3.00	10,000	30,000	30,000
Oklahoma	Gb, CEW, FA, SM, SWw, CLA	750,000	10.8	12.20	219,000	2,671,800	2.88	81,000	233,280	2,905,080
Tennessee	SM	16,601	10.8	11.12	4,000	44,496	5.00	4,000	20,000	64,496
Texas	Gb, ScBo, SM, CEW, SWw, CB, SwCB, SCR	5,827,000	26.0	29.12	58,270	1,696,822	3.25	815,800	2,651,350	14,799,086
				Subtotal		6,234,480			5,924,524	22,609,918
SOYBEANS										
Arkansas	CEW	4,227,000	3.15	9.37	3,190	29,890	2.00	126,810	253,620	283,510
Kansas	Gh	871,000	-	-	-	-	2.50	5,000	12,500	12,500
Maryland	BLB, CEW, MBB, T, Gh, GCw, JB	217,000	3.00	8.85	20,000	177,000	5.00	30,000	150,000	327,000

Crop State	Pest Complex	Total Acres Produced (1000)	Yield Loss Loss Per Acre (Units)	 Loss Per Acre (dollars)	 Non-treated Acres (1000)	 Sub-total ($1000)	Control Cost Cost Per Acre (dollars)	 Treated Acres (1000)	 Sub-total ($1000)	 Total Loss ($1000)
SOYBEANS (Cont.)										
Minnesota	BLB, GCw, Gh	2,851,000	-	-	-	-	2.00	12,000	24,000	24,000
North Dakota	Gh	208,000	1.4	3.99	10,000	39,900	2.50	30,000	75,000	114,900
Tennessee	SCN	1,302,000	2.6	7.54	550,000	4,147,000	-	-	-	4,147,000
	CEW	"	.0026	.01	-	13,020	-	-	-	13,020
Virginia	MBB, CEW, StB	353,000	3.5	10.22	5,000	51,112	4.00	165,000	660,000	716,112
					Subtotal	4,457,922			1,117,520	5,638,042
STRUCTURES										
Tennessee	EST	-	-	-	4,629	-	87.05	46,230	4,024,894	8,184,594
					Subtotal				4,024,894	8,184,594
SUGAR BEETS			Tons							
Arizona	BA, A, M	11,700	3.06	38.25	1,700	65,025	8.00	5,000	40,000	105,025
Minnesota	Wbw, Cws, RM, Ww	106,800	-	-	-	-	4.00	1,806	7,224	7,224
North Dakota	Ww, Gh, FB, SBRM	74,500	.5	9.00	5,000	225,000	3.50	20,000	70,000	295,000
					Subtotal	290,025			117,224	407,249
SUGAR CANE										
Hawaii	NGSW	115,800	.35	59.50	8,400	499,800	-	-	-	499,800
					Subtotal	499,800				499,800
SUNFLOWERS			Lbs.							
North Dakota	Ww, SfB, Gh, SfM, SuM, SSM	237,000	50.6	2.56	7,000	17,920	2.50	3,000	7,500	25,420
					Subtotal	17,920			7,500	25,450

Crop State	Pest Complex	Total Acres Produced (1000)	Yield Loss				Control Cost			Total Loss ($1000)
			Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Sub-total ($1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Sub-total ($1000)	
TANGERINES			Boxes							
Arizona	K, Gh, M, Od, T	900	30	75.00	-	-	12.00	900	10,800	10,800
					Subtotal				10,800	10,800
TOBACCO										
			Lbs.							
Maryland	GPA, TbH, TFB, TB, TH	28,000	106	86.78	7,000	607,460	15.00	20,000	300,000	907,460
Tennessee	TbH	53,600	21	15.67	-	-	5.00	53,900	269,500	269,500
	FB	"	10.56	7.88	-	-	8.00	53,600	428,800	428,800
					Subtotal	607,460			998,300	1,605,760
TOMATOES										
Hawaii	TPw, LMF, TFw, GHWF, CSpM, MF	170	2,924	584.80	-	99,416	320.81	170	54,537	153,953
			Tons							
Maryland	A, CPB, L, TFw VF, ECB, TH	3,500	2.54	107.19	500	53,600	15.00	3,000	45,000	98,600
					Subtotal	153,016			99,537	252,553
WATERMELON			Cwt.							
Arizona	A, CL, CcB, L	3,900	17.50	63.53	2,100	133,413	15.00	1,800	27,000	160,413
			Lbs.							
Hawaii	LMF, CSpM, GHWF	200	4,883	537.13	-	107,426	122.29	200	24,458	131,884
					Subtotal	240,839			51,458	292,297

Crop				Yield Loss			Control Cost			
State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Sub-total ($1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Sub-total ($1000)	Total Loss ($1000)
WHEAT			Bu.							
Arizona	Aw, Gb, Cws, M, T	173,000	10.20	17.54	10,000	175,400	5.00	20,000	100,000	275,400
Kansas	HF	9,061,000	.53	.70	5,700,000	3,970,650	-	-	-	3,970,650
	Gh	"	2.07	2.71	23,000	62,330	2.00	63,000	126,000	188,330
	Gb	"	2.07	2.71	40,000	108,480	2.50	10,000	25,000	133,480
	ACw, PWC	"	4.14	5.42	9,200	49,900	2.15	6,800	14,620	64,520
	Aw	"	1.73	2.26	15,000	33,900	-	-	-	33,900
Oklahoma	Gb, FA, BWM, Gh, ACw	3,475,000	5.4	7.61	659,555	5,019,214	2.57	243,945	627,039	5,646,253
North Dakota	A, AL, WSM, Ww, Gh	8,982,000	1.9	2.38	500,000	1,190,000	2.50	300,000	750,000	1,940,000
Texas	Gb, WGM, FA	1,496,000	3.15	4.66	173,000	806,180	2.70	500,000	1,350,000	2,156,180
WHEAT (HRS)										
North Dakota	WSSF	6,514,000	.3	.38	1,500,000	507,000	-	-	-	520,000
					Subtotal	8,413,054			2,992,659	14,978,713
					Total					

LEGEND

AC - Alfalfa Caterpillar
AlW - Alfalfa Weevil
A - Aphids
ApC - Apple Curculio
AM - Apple Maggot
ACw - Army Cutworm
Aws - Armyworms
AB - Asparagus Beetle
AL - Aster Leafhopper
BGM - Banks Grass Mite
BSc - Barnacle Scale
BF - Bean Fly
BLB - Bean Leaf Beetle
BA - Beet Armyworm
BL - Beet Leafhopper
BLM - Beet Leaf Miner
BWw - Beet Webworm
BC - Black Cutworm
BHF - Blackheaded Fireworm
BB - Blister Beetles
BW - Boll Weevil
Blw - Bollworm
BM - Broad Mite
BWM - Brown Wheat Mite
CL - Cabbage Looper
CWw - Cabbage Webworm
CFF - Caribbean Fruit Fly
CSpM - Carmine Spider Mite
CaB - Carrot Beetle
CaG - Cattle Grub
CaL - Cattle Lice
C - Chalcids
CB - Chinch Bugs
CRB - Chinese Rose Beetle
Cic - Cicadas
CtBM - Citrus Bud Mite
CPM - Citrus Peel Miner
CRM - Citrus Rust Mite
CT - Citrus Thrip
CoA - Clover Aphid
CLW - Clover Leaf Weevil
CsC - Clover Seed Chalcid

CdM - Codling Moth
CPB - Colorado Potato Beetle
CEW - Corn Earworm
CFB - Corn Flea Beetle
CLA - Corn Leaf Aphid
CP - Corn Planthopper
CR - Corn Rootworms
CLP - Cotton Leaf Perforator
CF - Cranberry Fruitworm
CG - Cranberry Girdler
Cr - Crickets
CcB - Cucumber Beetles
Cws - Cutworms
DB - Darkling Beetles
DM - Diamondback Moth
DsB - Dusky Sap Beetle
EST - Eastern Subterranean Termite
EAW - Egyptian Alfalfa Weevil
EGA - English Grain Aphid
ECB - European Corn Borer
FA - Fall Armyworm
FB - Flea Beetles
F - Fleahoppers
GFh - Garden Fleahopper
GW - Garden Webworm
GM - Ginger Maggots
G - Grass bugs
Gh - Grasshoppers
Gb - Greenbug
GCw - Green Cloverworm
GHWf - Greenhouse Whitefly
GPA - Green Peach Aphid
HF - Hessian Fly
HS - Hickory Shuckworm
HL - Hog Louse
HoF - Horn Fly
HrF - Horse Fly
Hf - House Fly
IC - Imported Cabbageworm
JB - Japanese Beetle
K - Katydids
LFB - Leaf-footed Bug

L - Leafhoppers
LMF - Leaf Miner Flies
LR - Leafrollers
LCB - Lesser Cornstalk Borer
LPTB - Lesser Peach Tree Borer
Li - Lice
LST - Lone Star Tick
Lo - Loopers
LB - Lygus Bugs
MB - Maize Billbug
MS - Meadow Spittlebug
Mb - Mealybug
MA - Melon Aphid
MF - Mealon Fly
MBB - Mexican Bean Beetle
M - Mites
Mo - Mosquitoes
NGSW - New Guinea Sugarcane Weevil
NFM - Northern Fowl Mite
OM - Onion Maggot
OT - Onion Thrips
OD - Orangedog
OFF - Oriental Fruit Fly
OFM - Oriental Fruit Moth
PWC - Pale Western Cutworm
PA - Pea Aphid
PTB - Peach Tree Borer
PNC - Pecan Nut Casebearer
PW - Pepper Weevil
P - Phylloxeras
PBw - Pink Bollworm
PB - Plant Bugs
PC - Plum Curculio
PFB - Potato Flea Beetle
PL - Potato Leafhopper
PP - Potato Psyllid
RFM - Red Flat Mite

LEGEND
(Cont.)

RPw - Rednecked Peanutworm
RSB - Rice Stink Bug
RWW - Rice Water Weevil
RA - Root Aphids
RM - Root Maggots
RW - Root Weevils
RAA - Rosy Apple Aphid
SMC - Saltmarsh Caterpillar
SJS - San Jose Scale
Sc - Scales
SCB - Seedcorn Beetle
SCM - Seedcorn Maggot
S - Slugs
SN - Snails
SW - Sod Webworms
SI - Soil Insects
SM - Sorghum Midge
SWw - Sorghum Webworm
SCR - Southern Corn Rootworm
SCSB - Southern Corn Stalk Borer
SwCB - Southwestern Corn Borer
SL - Soybean Looper
SCN - Soybean Cyst Nematode

SpM - Spider Mites
SLM - Spinach Leaf Miner
Slb - Spittle Bugs
SAA - Spotted Alfalfa Aphid
SVB - Squash Vine Borer
SF - Stable Fly
SB - Stalk Borer
StB - Stink Bugs
StCB - Striped Cucumber Beetle
SBRM - Sugarbeet Root Maggot
SuB - Sugarcane Beetle
ScBo - Sugarcane Borer
SfB - Sunflower Beetle
SfM - Sunflower Maggots
SuM - Sunflower Moth
SSM - Sunflower Seed Midge
SHw - Sweetpotato Hornworm
SpW - Sweetpotato Weevil
TpB - Tarnished Plant Bug
TCM - Texas Citrus Mite
TC - Thistle Caterpillar
TCAH - Threecornered Alfalfa Hopper
T - Thrips
Ti - Ticks

TB - Tobacco Budworm
TFB - Tobacco Flea Beetle
TbH - Tobacco Hornworm
Tb - Tomato Bug
TFw - Tomato Fruitworm
TH - Tomato Hornworm
TPw - Tomato Pinworm
Tsm - Tumid Spider Mite
TSM - Twospotted Spider Mite
VC - Variegated Cutworm
VbC - Velvetbean Caterpillar
VF - Vinegar Flies
Wbw - Webworms
W - Weevils
WBC - Western Bean Cutworm
WCR - Western Corn Rootwrom
WCM - Wheat Curl Mite
WSM - Wheat Stem Maggot
WSSF - Wheat Stem Sawfly
Wf - Whitefly
WFB - Whitefringed Beetles
WG - White Grubs
WPS - White Peach Scale
WGM - Winter Grain Mite
Ww - Wireworms

WEATHER OF THE WEEK ENDING DECEMBER 25

Reprinted from weekly Weather and Crop Bulletin supplied by the environmental Data Service, NOAA.

PRECIPITATION: A storm centered off the coast of British Columbia early in week moved southward to the Washington coast by midweek and intensified. It caused rain along the coast with snow in nearby hills and mountains. By midweek, heavy rain in the Pacific Northwest was accompanied by strong winds. Light snow fell over the Northern Great Plains to the Great Lakes. Treacherous mixtures of snow, freezing rain, freezing drizzle, and fog hampered travel by automobile from the northern and central Great Plains to the Mississippi River Valley and the Great Lakes. Snow accumulated a foot or more in spots of interior New England. Thunderstorms, accompanied by heavy rain, occurred in the Deep South. Up to 5 inches or more fell early Thursday. As the weekend approached, more severe thunderstorms threatened the Deep South and the Pacific storm became more intense. The weekend brought rain to the Pacific Northwest with snow in the western mountains, treacherous mixtures of snow with freezing rain, or freezing drizzle accompanied by strong winds from the central Great Plains to the Greak Lakes and combinations of drizzle and fog from the southern Great Plains to the middle Atlantic Coast. Rain, snow, clouds or fog covered much of the area from the Mississippi River to the Atlantic Ocean. In general, snow fell in northern portions, freezing precipitation glazed the area south of the snow belt, and rain, drizzle, and fog occurred farther south. The weekly rainfall totals ranged from heavy up to more than 8 inches along the Washington Coast to light sprinkles or snow flurries over the northern Great Plains. The far southwest received no rain and only light amounts fell in the Great Plains. More generous precipitation occurred over the Appalachians, the Atlantic Coastal Plains and the Deep South.

TEMPERATURE: Bitter cold continued over much of the Nation early in the week. Subfreezing temperatures occurred over northern Florida, 32 degrees in Jacksonville Monday morning. Moisant Airport, New Orleans, Louisiana, registered 31 degrees Monday. Subzero weather occurred in Northern Maine and the central Rocky Mountains. Warmer weather returned to Florida Tuesday by midweek, maximums reached the 60's and 70's generally with 84 degrees at Palm Beach Thursday. A warming trend over the western Great Plains pushed the afternoon temperatures in the 40's and 50's. A warming trend continued through the rest of the week and brought the average temperatures to above normal over almost the entire Nation. Much of the country averaged 6 to 12 degrees or more warmer than normal.

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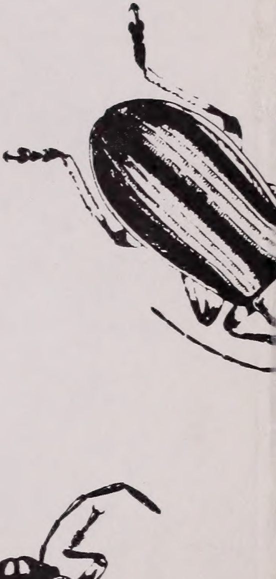

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